Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Form PCT/IPEA/416
BR-F03026-00		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/JP2004/004779	01.04.2004	01.04.2003

International Patent Classification (IPC) or national classification and IPC

Applicant

BRIDGESTONE CORPORATION

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 6 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))

      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/004779

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (Rule 12.3 and 23.1(b))

☐ publication of the international application (Rule 12.4)

☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1,2,5-16 as originally filed/furnished

pages* 3,3/1,4,4/1 received by this Authority on 20.06.2005

pages* _____ received by this Authority on _____

☒ the claims:

nos. 2,5,7-10 as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* 3,4 received by this Authority on 01.11.2004

nos.* 1 received by this Authority on 20.06.2005

☒ the drawings:

sheets 1-6 as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☒ the claims, nos. 6

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/004779

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-5, 7-10	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-5, 7-10	NO
Industrial applicability (IA)	Claims	1-5, 7-10	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Document 1: JP 2001-260619 A (Meritor Heavy Vehicle Systems LLC), 26 September 2001

Document 2: JP 2000-062639 A (Bridgestone Corp.), 9 February 2000

Document 3: JP 2002-082021 A (The Yokohama Rubber Co., Ltd.), 22 March 2002

Document 4: JP 07-223516 A (Digital Stream), 22 August 1995

The invention set forth in claims 1 and 2 does not involve an inventive step in the light of documents 1 and 2.

Document 1 is considered to disclose a method for analysing the state of a vehicle comprising a first step wherein the number of revolutions (alignment threshold) of the wheels is measured while the vehicle is travelling on the road under predetermined conditions, a second step wherein, after the first step, the number of revolutions (alignment threshold) is measured during normal running time on the road, and a step wherein the measured value (alignment threshold) obtained in the first step and the measured value (alignment threshold) obtained in the second step are compared (see, in particular, paragraph

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

[0028]). Furthermore, document 1 also discloses the feature wherein the number of revolutions (alignment threshold) of the wheels of a vehicle set to have suitable suspension is measured while the vehicle is travelling under predetermined conditions (see, in particular, paragraph [0020]).

Therefore, it would be easy for a person skilled in the art to adapt the first step in the method for analysing the state of a vehicle disclosed in document 1 so that measurements are made while the vehicle with suitable suspension having been set is travelling on a road that acts as a reference under predetermined conditions.

In addition, document 2 discloses the feature of measuring the change in lateral force and the rate of change when optimising alignment.

Therefore, it would be easy for a person skilled in the art to make the change in lateral force or the rate of change the target of the measurement in the method for analysing the state of a vehicle disclosed in document 1 based on the disclosures in document 2.

The invention set forth in claim 3 does not involve an inventive step in the light of documents 1 and 2.

In the system disclosed in document 1, the alignment function Fm is measured while the vehicle travelling on a road, and the present value of said alignment function Fm is compared with the previous value (see, in particular, paragraph [0028]). Therefore, document 1 appears to disclose a method for analysing the state of a vehicle having a means for calculating temporal changes in measured data.

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

It would be easy for a person skilled in the art to make the change in lateral force or the rate of change of lateral force input to the vehicle via the wheels when travelling on the road the target of the measurement in the method for analysing the state of a vehicle disclosed in document 1 based on the disclosures in document 2.

Taking into consideration the disclosures in paragraph 2 of document 1 which states "Impacts from the road along with general wear and tear can cause "wheel misalignment" where a tire touches the road at an undesirable angle", a person skilled in the art would be able to calculate long term fluctuations in the alignment function Fm over and above comparing the present and previous values of alignment function Fm in the method for analysing the state of a vehicle disclosed in document 1, as appropriate.

The invention set forth in claim 4 does not involve an inventive step in the light of documents 1 and 2.

Document 1 discloses a method for analysing the state of a vehicle comprising a first means storing as the reference value data relating to the output of wheel speed sensors (21) while the vehicle is travelling under predetermined conditions, a second means for storing data related to the output of wheel speed sensors (21) during regular travelling of the vehicle, a calculation means for analysing the state of the vehicle based on the data stored in the first means and data stored in the second means, and a means for outputting the result obtained by the calculation means (see, in particular, paragraph [0028]).

Furthermore, document 1 also discloses the feature

wherein the number of revolutions (alignment threshold) of the wheels of a vehicle set to have suitable suspension is measured while the vehicle is travelling under predetermined conditions (see, in particular, paragraph [0020]).

Therefore, it would be easy for a person skilled in the art to make the first means in the method for analysing the state of a vehicle disclosed in document 1 a means for storing data obtained when a vehicle set to have suitable suspension is travelling under predetermined conditions based on the disclosures in document 2.

It would be easy for a person skilled in the art to make the change in lateral force or the rate of change of lateral force the target of the measurement in the method for analysing the state of a vehicle disclosed in document 1 based on the disclosures in document 2.

The invention set forth in claim 5 does not involve an inventive step in the light of documents 1 and 2.

The feature of providing a vehicle with a force sensor for detecting the input of force to a vehicle from the wheels and the feature of providing a means for storing the vehicle state, a means for analysing the vehicle state and a data output means on the outside of a vehicle are both known in the art. (The former is disclosed in document 3 (paragraph [0015]) and the latter is disclosed in document 4 (paragraph [0014]-[0015]).

The invention set forth in claim 7 does not involve an inventive step in the light of documents 1 and 2.

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The invention set forth in claim 8 does not involve an inventive step in the light of documents 1 and 2.

The feature of providing a vehicle with a means for displaying the state of the vehicle is known art (see, in particular, paragraph [0016]).

The invention set forth in claim 9 does not involve an inventive step in the light of documents 1 and 2.

Document 1 appears to disclose the feature wherein the suspension alignment is automatically adjusted based on the analysed vehicle state (see, in particular, paragraph [0029]).

The invention set forth in claim 10 does not involve an inventive step in the light of documents 1 and 2.